

WHAT IS CLAIMED IS:

1. A method for producing an optical disk including a substrate and a recording layer disposed above the substrate and reproducing an information
5 signal by a DWDD system, using light incident from the substrate side, the method comprising the processes of:

(i) forming a first dielectric layer, the recording layer, and a second dielectric layer on the substrate in this order; and

(ii) irradiating the recording layer with laser light for initialization
10 from the second dielectric layer side, thereby weakening magnetic coupling of a part of the recording layer.

2. A method for producing an optical disk according to claim 1, wherein a wavelength of the laser light for initialization is λ , and

15 a thickness of the second dielectric layer is in a range of $\lambda/(12 \times n)$ to $\lambda/(2 \times n)$, where n is a refractive index of the second dielectric layer.

3. A method for producing an optical disk according to claim 1, wherein the laser light for initialization is obtained by condensing laser light by an
20 objective lens with a numerical aperture of at least 0.65.

4. A method for producing an optical disk according to claim 1, wherein during the process (ii), the recording layer is irradiated with laser light for tracking servo, whereby tracking servo is conducted.

25 5. A method for producing an optical disk according to claim 4, wherein a wavelength of the laser light for initialization is shorter than a wavelength of the laser light for tracking servo.

30 6. A method for producing an optical disk according to claim 1, further comprising forming, on the second dielectric layer, a heat conduction adjusting layer for adjusting sensitivity of the recording layer after the process (ii).

35 7. A method for producing an optical disk according to claim 1, wherein during the process (ii), a region of the recording layer to be irradiated with the laser light for initialization is heated before being irradiated with the laser light for

initialization.

8. An optical disk comprising a substrate and a recording layer disposed above the substrate, and reproducing an information signal by a DWDD system,
5 using light incident from the substrate side, the optical disk further comprising a first dielectric layer disposed between the substrate and the recording layer and a second dielectric layer disposed on the recording layer opposite to the substrate,

10 wherein magnetic coupling of a part of the recording layer is weakened by irradiation with light having a wavelength λ incident from the second dielectric layer side, and

a thickness of the second dielectric layer is in a range of $\lambda/(12 \times n)$ to $\lambda/(2 \times n)$, where n is a refractive index of the second dielectric layer.

15 9. An optical disk according to claim 8, wherein the second dielectric layer is made of silicon nitride and has a thickness in a range of 40 nm to 60 nm, and the wavelength λ is in a range of 400 nm to 410 nm.

20 10. An optical disk according to claim 8, wherein the second dielectric layer is made of silicon nitride and has a thickness in a range of 25 nm to 30 nm, and the wavelength λ is in a range of 400 nm to 440 nm.

25 11. An optical disk according to claim 8, wherein a refractive index of the second dielectric layer is larger than a refractive index of the first dielectric layer.

30 12. An optical disk according to claim 8, further comprising a heat conduction adjusting layer disposed on the second dielectric layer for adjusting sensitivity of the recording layer.

13. An optical disk according to claim 8, further comprising a protective coating layer formed on the second dielectric layer opposite to the substrate, the protective coating layer being thinner than the substrate.

35 14. An optical disk according to claim 8, wherein a difference in level is formed on a surface of the substrate on the recording layer side, and recording tracks of the recording layer are separated magnetically by

the difference in level.

15. An optical disk comprising a substrate and a recording layer disposed above the substrate, and reproducing an information signal by a DWDD system, using light incident on the substrate side,

wherein sample servo pits for conducting tracking control by a sample servo system are formed on the substrate,

grooves to be recording tracks are formed in a concentric shape or a spiral shape in a recording/reproducing region of the substrate,

a track pitch of the recording tracks is in a range of $0.5\ \mu\text{m}$ to $0.6\ \mu\text{m}$, and

the recording track is cut off magnetically from an adjacent recording track by allowing a laser spot of laser light having a wavelength λ in a range of $400\ \text{nm}$ to $440\ \text{nm}$ to scan an inter-groove portion.

16. An optical disk according to claim 15, comprising a first dielectric layer disposed between the substrate and the recording layer, and a second dielectric layer disposed on the recording layer opposite to the substrate,

wherein the recording track is cut off magnetically from an adjacent recording track by irradiation with laser light from the second dielectric layer side.

17. An optical disk according to claim 16, wherein a thickness of the second dielectric layer is in a range of $\lambda/(12 \times n)$ to $\lambda/(2 \times n)$, where n is a refractive index of the second dielectric layer.

18. An optical disk according to claim 15, wherein a reflectivity R_G of the groove and a reflectivity R_L of the inter-groove portion satisfy $0.95 < R_G/R_L \leq 1.0$.